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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,099	07/22/2003	Risto Ronkka	460-008439-US (C01)	8774

7590 09/15/2004

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EXAMINER

OPIE, GEORGE L

ART UNIT	PAPER NUMBER
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2126

DATE MAILED: 09/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/625,099	Ronkka et al.	
	Examiner	Art Unit	
	George L. Opie	2126	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- 1) ☒ Responsive to communication(s) filed on 7/22/03.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ☐ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ☐ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) ☐ is/are objected to.
- 8) ☐ Claim(s) ☐ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ☐ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on ☐ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some * c) ☐ None of the CERTIFIED copies of the priority documents have been:
1. ☒ received.
2. ☒ received in Application No. (Series Code / Serial Number) 09/234,433
3. ☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

- 14) ☐ Notice of References Cited (PTO-892) 17) ☐ Interview Summary (PTO-413) Paper No(s). ☐
- 15) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 18) ☐ Notice of Informal Patent Application (PTO-152)
- 16) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7/22/03 19) ☐ Other:

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DETAILED ACTION

1. Request for copy of Applicant's response on floppy disk:

Please help expedite the prosecution of this application by including, along with your amendment response in paper form, an electronic file copy in WordPerfect, Microsoft Word, or in ASCII text format on a 3½ inch IBM format floppy disk.

Please include all pending claims along with your responsive remarks. Only the paper copy will be entered -- your floppy disk file will be considered a duplicate copy. Signatures are not required on the disk copy. The floppy disk copy is not mandatory, however, it will help expedite the processing of your application.

Your cooperation is appreciated.

2. The cross reference related to the application cited in the specification must be updated (i.e., update the relevant status, with patent numbers where appropriate, on the specification page 2). Correction is required.

3. **Obviousness-type double patenting rejection**

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. CIT. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Uogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

"Double patenting rejection of application claims was fully justified where applicant, in course of expanding first application to disclose enough more by way of details, alternatives, and additional uses to support broad, dominating, generic claims in later applications, has disclosed no additional invention or discovery other than that what was already claimed in patent on first application; there is significant difference between justifying broadening of claims and disclosing additional inventions." *In re Van Ornum*, 214 USPQ (CCPA 1982).

Claims 1-18 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-39 of application 09/234,433 filed January 20, 1999, now U.S. Patent 6,631,394.

Although the conflicting claims are not identical, they are not patentably distinct from each other because of corresponding language that recites many of the

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same elements and functions claimed in the previously patented invention, i.e., *"a communication device", "at least one processor", "at least two operating systems", "a first operating system ... first group of threads", "a second operating system ... a second group of threads", "mobile station functions and data processing functions", and "the first operating system relates to running of the mobile station functions, and the second operating system relates to running of the data processing functions."*

The claimed differences would be obvious to an engineer of ordinary skill because the instant claims are merely embodiments of the claims recited in the previously patented invention, e.g., **independent claim 1 of the instant application claims:**

A device comprising
at least one processor to run at least two operating systems, wherein the at least two operating systems include a first operating system comprising a first group of threads, and a second operating system comprising a second group of threads, the communication device further comprising
at least one user interface, mobile station functions and data processing functions, and that of said at least two operating systems the first operating system relates to running of mobile station functions, and the second operating system relates to running of data processing functions.

as opposed to

A communication device comprising:

at least one processor for executing at least two operating systems, wherein the at least two operating systems include
a first operating system including a first group of threads and a second operating system including a second group of threads;
means for generating an interrupt to said processor;
means for determining a thread selected from the first and second group of threads to execute in response to said interrupt and as defined by any applications, said means for determining including at least one at least partly common interrupt handler for said at least two operating systems;

and further comprising mobile station functions and data processing functions, wherein the first operating system relates to running of the mobile station functions, and the second operating system relates to running of the data processing functions.

as claimed in dependent claim 23 of the previously patented invention.

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Because the instant claims are mere variations/additions on the limitations from the set of elements and functions claimed in the previously patented invention, such modifications would be readily apparent to one of ordinary skill in the art.

Terminal Disclaimer

6. A timely filed terminal disclaimer in compliance with 37 C.F.R. ' 1.321(b) would overcome an actual or provisional rejection on this ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 C.F.R. ' 1.78(d).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claim Rejections - 35 U.S.C. § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-18 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Friedrich et al. (EP0360135) in view of the Admitted Prior Art (APA). Note: the Friedrich reference was provided by Applicant's Information Disclosure Statement.

As to claim 1, Friedrich (abstract) teaches a communication device comprising two operating systems (time-sharing system and real-time OS) the first operating system relates to running of mobile station functions (real-time OS ... programs) and the second operating system relates to running data processing functions (timesharing OS with ... general data processing). The Friedrich reference is silent as to the OS threads, however, the use of threads by the operating

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systems would have been inherent in the OS architectures, as threads are fundamental "paths of execution" employed by OS processes. Friedrich does not explicitly disclose the user interface, mobile station functions and data processing functions.

The APA (page 7) teaches a "thread can comprise functions related to one or several processes, and . . . execution of the threads is controlled by a scheduler of the operating system." The APA (page 3) also makes known that "electronic devices have been developed having both a data processor and telecommunication device in combination." In particular, the APA (page 3) describes the "Nokia 9000. . . having both data processing operations and mobile station operations." For the user to monitor and interact with the foregoing functions, the Nokia 9000 Communicator comprises interfaces corresponding to its various features. It would have been obvious to combine the APA's teachings with Friedrich's dual OS operations because the communication device could "utilize the results of earlier product development . . . in a single processor solution" (page 3) and thus, the integrated system would economize energy, efficiently executing programs for both the mobile station and data processing.

As to claim 2, Friedrich teaches that "[e]ach interrupt is centrally detected, checked to see which of the two operating systems it belongs to and processed . . ." which corresponds to the means for thread selection responsive to an interrupt, including at least one at least partly common interrupt handler with its associated operations for the two operating systems.

As to claim 3, note the discussion of claim 1 *supra*. The limitations of claim 3 are functionally equivalent to the claim 1 limitations but for the addition of a second user interface. From the teachings of Friedrich and the APA, it would have been obvious for one skilled in the art to provide a second interface in the communication device to assist with display/interaction of the various programs relative to the mobile station and data processing functions; in other words, the key controls and I/O screen would be configured with different interfaces in a fashion commensurate with the features/parameters of each program to ergonomically optimize use of its sundry functions.

As to claims 4-5, the APA (page 3) teaches the "Nokia 9000 Communicator, which is a portable device . . . having both data processing operations and mobile station operations." The Nokia 9000 Communicator has the telephone and PDA interfaces as recited.

As to claim 6, the APA (page 7) teaches the "task of the operating system" includes switching from "between" one context to a second context or thread

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when the one context has no executing threads. This OS task management discussion references the basic principles in OS process controlling, and from this it would have been obvious for one skilled in the art to provide the means for moving from the first OS to the second OS when no thread of the first OS is running, because the inactive state of tasks in an OS would be a logical condition for switching/utilizing the processing capabilities to another task, and thus more fully occupying/optimizing the processor resources.

As to claim 7, Friedrich (abstract) teaches "the realtime operating system is activated in the occurrence of a real-time interrupt" which corresponds to the means for moving from the execution of the second operating system to run the first operating system when an interrupt to the processor affects the running of at least one thread under the first operating system.

As to claim 8, Friedrich (abstract) teaches that a real time OS is one of the two operating systems.

As to claim 9, the APA (page 7) teaches the processor modes substantially as claimed. The APA goes on to describe how some operating systems, processes and applications are implemented using different modes, and it references the privileges and characteristics that are used to establish which OS processes and programs should operate in the various modes, which would have made obvious the selection of modes for operation of OS processes and the interrupt handler.

As to claim 10, the APA (page 7) teaches that [o]ne thread can comprise functions related to the execution of one or several processes" and thus, it would have been obvious to provide the limitation that the first group of threads has one thread comprising the second operating system.

As to claim 11, note the discussion of claim 3 supra. The limitations of claim 11 are functionally equivalent to the claim 3 limitations but for the addition of a second processor to run the second OS. The APA clearly meets this additional limitation in its description of the Nokia 9000, stating that it provides "the data processing portion with a processor of its own and an operating system of its own therein, and likewise, the mobile station embodiments have a processor of their own and an operating system of their own." It would have been obvious to employ the two processor scheme with the Friedrich/APA system because the dual processor package could "utilize a previously developed product" as the processor-based applications would readily run on their respective processors sans much modification of the intended applications, thereby facilitating installation/porting of developed programs.

As to claim 12, see the discussion of claim 4 supra.

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As to claim 13, Friedrich teaches that "[e]ach interrupt is centrally detected, checked to see which of the two operating systems it belongs to and processed . . ." which corresponds to the means for thread selection responsive to an interrupt, including at least one at least partly common interrupt handler with its associated operations for the two operating systems.

As to claims 14-18, see the discussions of claims 5-9 respectively.

9. The prior art of record and not relied upon is considered pertinent to the applicant's disclosure. Specifically, the below reference(s) will also have relevancy to one or more elements of the Applicant's claimed invention as follows:

U.S. Patent No. 6,260,075 to Cabrero et al. which teaches the coordinated execution of two different operating systems with respective threads;

U.S. Patent No. 6,125,411 to Sato which teaches the two operating systems running together in a single computer;

U.S. Patent No. 5,974,439 to Bollella which teaches the administration of a two OS system using program priority for task/thread management;

U.S. Patent No. 5,515,538 to Kleiman which teaches "common interrupt code" to minimize context switching;

U.S. Patent No. 5,490,275 to Sandvos et al. which teaches a structured mechanism for handling interrupts that are common among the different systems in a communications device; and,

U.S. Patent No. 5,301,277 to Kanai which teaches the use of one partly common interrupt handler for two different operating systems.

10. Contact Information:

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system.

Status information for published applications may be obtained from either Private-PAIR or Public-PAIR.

Status information for unpublished applications is available through Private-PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>.

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Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

- ☐ All responses sent by U.S. Mail should be mailed to:

**Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450**

- ☐ Hand-delivered responses should be brought to Crystal Park Two, 2021 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist). All hand-delivered responses will be handled and entered by the docketing personnel. Please do not hand deliver responses directly to the Examiner.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

All OFFICIAL faxes will be handled and entered by the docketing personnel. The date of entry will correspond to the actual FAX reception date unless that date is a Saturday, Sunday, or a Federal Holiday within the District of Columbia, in which case the official date of receipt will be the next business day. The application file will be promptly forwarded to the Examiner unless the application file must be sent to another area of the Office, e.g., Finance Division for fee charging, etc.

- ☐ Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist at **(703) 305-9600**.
- ☐ Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Opie at (703) 308-9120 or via e-mail at *George.Opie@uspto.gov*. Internet e-mail should not be used where sensitive data will be exchanged or where there exists a possibility that sensitive data could be identified unless there is an express waiver of the confidentiality requirements under 35 U.S.C. 122 by the Applicant. Sensitive data includes confidential information related to patent applications.

Note: Due to the PTO's move to Alexandria, the above-listed examiner's telephone number will be changed. As of 8 October 2004, Mr. Opie can be reached at (571) 272-3766.


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